

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Anja KNUPPEL et al.

**Confirmation No.:** 1726

**Group Art Unit:** 1617

Serial No.: 10/017,157

Examiner: Katamneni, Shobha

Filed : December 14, 2001

For : USE OF POLYURETHANES FOR IMPROVING THE WATER  
RESISTANCE OF COSMETIC AND DERMATOLOGICAL FORMULATIONS

**REPLY BRIEF UNDER 37 C.F.R. § 41.41(a)(1)**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Appeal Brief - Patents  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

This Reply Brief is in response to the Examiner's Answer mailed March 2, 2009, the period for reply extending until May 2, 2009.

In the Examiner's Answer all grounds of rejection set forth in the final rejection are maintained.

Appellants note that the Examiner's Answer does not sufficiently address several of Appellants' arguments as to why the rejections are without merit, and misrepresents some of the facts. These deficiencies have prompted the present Reply Brief.

Appellants also note that this Reply Brief is being filed under 37 C.F.R. § 41.41(a)(1) and is directed to the arguments presented in the Examiner's Answer, and therefore must be entered unless the final rejection is withdrawn in response to the instant Reply Brief.

In order to avoid repetition, the following response to the Examiner's arguments in the Examiner's Answer will be limited to issues which are important enough to warrant a further comment in Appellants' opinion. Accordingly, Appellants' silence with respect to any allegations set forth in the Examiner's Answer which are not specifically addressed below should by no means be construed as Appellants' admission that these allegations are of any merit.

### REPLY

1. Appellants point out again that the disclosures of KANTNER (U.S. Patent No. 6,433,073) and KIM (U.S. Patent No. 6,372,876) are irreconcilable as far as the required properties of the polyurethanes for cosmetic (hair care and styling) purposes disclosed therein are concerned, wherefore one of ordinary skill in the art would be discouraged rather than motivated to use the polyurethanes of KIM in the cosmetic compositions of KANTNER. In particular, the polyurethanes described in KANTNER and KIM show conflicting properties. For example, the polyurethanes of KANTNER, when used in cosmetic compositions, must be sufficiently hydrophobic so that they are not washed off when the skin or the hair comes into contact with water (otherwise these polyurethanes would not be able to provide water resistance or substantivity to skin, nails or hair). In contrast, the polyurethanes of KIM must be "sufficiently hydrophilic to be washed out of the hair". In other words, the polyurethanes of KANTNER must be water resistant whereas the polyurethanes of KIM must not be water resistant (because otherwise it will not be possible to wash the polyurethanes of KIM out of the hair).

The Examiner's only comments regarding this apparent difference between the polyurethanes of KANTNER and the polyurethanes of KIM appear to be on page 12, third and fourth paragraphs of the Examiner's Answer (emphasis added):

In response, it is pointed out that contrary to applicant's remarks that "a polyurethane which is soluble in water (i.e., lacks water resistance)", [KIM] does not teach that the polyurethanes therein lack water resistance. [KIM] teach that the polyurethanes therein have humidity resistance, and are employed for hair styling applications. [KIM] also teaches that the polymers for hair styling application must be hydrophobic i.e repel water so that the hair treated with the polymers retains its shape and does not become sticky when the humidity is high. See [KIM], lines 52-53.

Both [KANTNER] and [KIM] teach that the polyurethanes therein have humidity resistant property, and thus the polyurethanes of [KANTNER] are interchangeable with the polyurethanes of [KIM], and there is clear motivation to employ polyurethanes of [KIM] as discussed above.

Appellants note that the Examiner again appears to take the position that there is no difference between water resistance and humidity resistance. That water resistance and humidity resistance are completely different properties and that a polyurethane which lacks water resistance (is soluble in water) can still impart humidity resistance to the hair is explained in detail in the passage from the next-to-last paragraph of page 12 to page 13, first paragraph of the Appeal Brief.

2. Appellants further note that the Examiner does not appear to dispute the fact that the polyurethanes for use in the compositions of KANTNER must be water resistant but takes the position that KIM "does not teach that the polyurethanes therein lack water resistance". While it is correct that KIM does not expressly state that the polyurethanes disclosed therein lack water resistance (it would be

quite unusual for a document to mention a property that is not present), it is submitted that this fact becomes apparent to the reader of KIM from, for example, the polyurethane of Example 5 which is employed in the hair setting compositions (d) and (e) and is soluble in water.

The Examiner's apparent confusion regarding the terms water resistance and humidity resistance may be due to the fact that in one case (water resistance) the resistance to liquid water and in the other case (humidity resistance) the resistance to water vapor, i.e., gaseous water, is measured. In particular, the quantity of water to which a substance is exposed in the case of water resistance is apparently significantly higher than that in the case of humidity resistance. In other words, as long as there is not enough water present to solvate the polyurethane molecules, these molecules will stay in place and the hydrophobic parts thereof may even be able to repel small amounts of (gaseous) water and to hinder the (gaseous) water molecules to reach the underlying substrate, thereby imparting humidity resistance.

3. Appellants further point out that while KANTNER mentions humidity resistance in col. 5 thereof, it is clear that the polyurethanes described in KANTNER are not (or at least not primarily) responsible for this property. In particular, KANTNER states that the dispersion disclosed therein "can also improve the humidity resistance of hair styling agents when used at low levels in combination with other hair styling resins" (col. 5, lines 40-42). In other words, KANTNER teaches that the polyurethanes disclosed therein by themselves are not able to impart

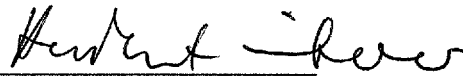
humidity resistance to a hair styling agent although that they apparently can help to improve the humidity resistance if used in small amounts in combination with other resins.

### CONCLUSION

The request to reverse the rejection of claims 64-109 and to return the application to the Examining Group for prompt allowance is respectfully maintained.

Although no fee is believed to be required for entry of this Reply Brief, the Patent and Trademark Office is hereby authorized to charge any fee that is deemed to be necessary to Deposit Account No. 19-0089.

Respectfully submitted,  
Anja KNUPPEL et al.

  
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